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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,887	02/11/2004	Colin Temple	HES 2003-IP-009967U1P1	3325
28857	7590	08/11/2008	EXAMINER	
CRAIG W. RODDY HALLIBURTON ENERGY SERVICES P.O. BOX 1431 DUNCAN, OK 73536-0440			FIGUEROA, JOHN J	
			ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/776,887	Applicant(s) TEMPLE ET AL.	
	Examiner JOHN J. FIGUEROA	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) See Continuation Sheet is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/28/08 & 6/25/08</u> . | 6) <input type="checkbox"/> Other: _____ |

Continuation of Disposition of Claims: Claims pending in the application are 1,3-8,10-19,21-25,27,28,30,32-36,39-42,44,56,59-62,65-73,82,83,85-90,92-95,97-100 and 103-111.

Continuation of Disposition of Claims: Claims rejected are 1, 3-8, 10-19, 21-25, 27, 28, 30, 32-36, 39-42, 44, 56, 59-62, 65-73, 82, 83, 85-90, 92-95, 97-100 and 103-111 ..

DETAILED ACTION

Response to Amendment

1. The 35 U.S.C. 102 rejection of claims 56, 64-70, 72, 82, 83, 95, 102-108 and 110 as anticipated by Nohr (US Pat. Publ. No. 2002/0149656) of record in item 1 on page 2 of the Office Action mailed August 23, 2007 (hereinafter 'OA') has been withdrawn in view of Applicant's amendment to the independent claims in the response to OA filed May 6, 2008 (hereinafter 'Response') limiting the average particle size of the nanoparticle source to be less than 1000 nanometers.
2. The 35 U.S.C. 103 rejection as unpatentable over USPN 4,498,994 to Heilweil (hereinafter 'Heilweil') in view of USPN 3,252,904 to Carpenter (hereinafter 'Carpenter') of record in item 5 on page 3 of OA has been withdrawn in view of Applicant's amendment to the claims in Response limiting the average particle size of a portion of the nanoparticle source to be less than 1000 nanometers.
3. The 35 U.S.C. 103 rejection as unpatentable over Heilweil and Carpenter and further in view of USPN 5,945,387 to Chatterji et al. (hereinafter 'Chatterji') of record in item 6 on page 4 of OA has been withdrawn in view of Applicant's amendment to the claims in Response limiting the average particle size of a portion of the nanoparticle source to be less than 1000 nanometers.
4. The indication of allowable subject matter of record in items 7 and 8 on page 5 of OA has been withdrawn.

Double Patenting

5. The obviousness-type double patenting rejection of claims 1, 3-8, 10-12, 14, 15, 17, 19, 21-28, 30, 32-36, 39-42, 44, 56, 59-62, 65-67, 69, 70, 72, 82, 83, 85-90, 92, 93, 95, 97-100, 103-105, 107, 108 and 110 over U.S. Serial Nos. **11/183,113** that was previously made of record in item 7 on page 5 of the Office Action of May 7, 2005 has been reinstituted in the instant action.

This rejection had been previously withdrawn in view of the Terminal Disclaimer (TD) filed by Applicant on November 15, 2007 disclaiming U.S. Serial No. 11/183,**123**. However, a double patenting rejection was not made over this application serial number that was cited in the TD and it is apparently an error. Thus, a submission of a terminal disclaimer with the correct application serial number is required to overcome the instant rejection.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1, 3-8, 10-19, 21-25, 27, 28, 30, 32-36, 39-42, 44, 56, 59-62, 65-73, 82, 83, 85-90, 92-95, 97-100 and 103-111 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicant regards as the invention. Independent claims 1, 19, 30, 41, 56, 82, 86 and 95 have been amended to limit "at least a portion of" the PVP

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nanoparticle source to have an average particle size of less than 1,000 nanometers. It is unclear from the claim language and from the specification as to how a person skilled in the art is to determine the quantity/amount of PVP nanoparticle source that the limitation "at least a portion of" encompasses.

Claim Rejections - 35 USC § 102

8. **The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.**

9. Claims 56, 62, 65, 66, 67, 69, 70, 82 and 83 as anticipated by USPN 7,348,365 B2 to Lee (hereinafter 'Lee').

Lee discloses a colloid solution of metal nanoparticles and/or metal-polymer nanocomposites having a uniform particle diameter, wherein the polymer can be PVP. (Abstract; col. 2, lines 27-35; col. 3, lines 25-47; col. 4, lines 42-56) The PVP component can be present in 0.1 to 10 parts by weight. (Col. 3, lines 63-67) The solution can contain water, salt, a scavenger and other additives. (Col. 3, lines 2-17 and 53-62). Lee discloses in Example 2 a nanoparticle colloid solution containing PVP, wherein the average particle diameter is 10 to 12 nanometers.

Thus, the claims are anticipated by Lee.

10. Claims 56, 62, 65-73, 82, 83, 95 and 100-111 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 7,276,249 B2 to Ryde et al. (hereinafter 'Ryde').

Ryde discloses nanoparticulate compositions comprising up to 99.5% of fenofibrate, at least one surface stabilizer adsorbed on the surface of the drug and

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further excipients, wherein the nanoparticulate fenofibrate particles have an effective average particle size of less than about 2000 nm, particularly 50 nm to 2 microns. (Col. 5, lines 3-19; col. 19, lines 49-65; col. 20, lines 34-37) The nanoparticulate composition can further contain water and/or an aqueous salt solution as a solvent, such as potassium chloride (col. 12, lines 51-58; col. 22, lines 20-37); stabilizers, such as biopolymers and cellulosic/polysaccharide derivatives (col. 15, lines 56-66; col. 16, lines 40-49); and a lubricant (col. 19, lines 9-12).

Ryde further teaches that the nanoparticulate fenofibrate composition can further contain crosslinked PVP (crospovidone) as a disintegrant (col. 19, lines 33-34) and a carbonate or bicarbonate effervescent agent ("weighting agent") in col. 19, lines 36-47. (See, e.g. exemplary formulations on tables on bottom of column 20 and on column 21 disclosing crospovidone as component present in about 10%) Ryde also discloses the nanoparticulate composition provided in liquid dosage forms, dispersive forms and spray forms, wherein the solvent can be water. (Col. 24, lines 32-44; Table 3 on col. 26; Tables 9, 12 and 17)

Particularly, in col. 17, lines 33, Ryde discloses a granulated feed dispersion of a nanoparticulate formulation in purified water containing crospovidone. (Table 18) Therefore, in accordance with Tables 18-20, if about 427.3 g/Kg of the composition is dispersed/diluted in 572.7 g/Kg of purified water, the amount of crospovidone in the water dispersion will be about half of that present in the resultant tablet formulation (less than 5%).

Thus, the claims are anticipated by Ryde.

Claim Rejections - 35 USC § 103

11. Claims 1, 4-8, 10-19, 21-25, 27, 28, 30, 33-36, 39-42, 44, 56, 59-62, 65-73, 82, 83, 85-90, 92-95, 97, 98, 100 and 103-111 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0160919 to Stowe, II et al. (hereinafter 'Stowe') in view of Heilweil and further in view of Carpenter.

Stowe discloses a water-based drilling fluid composition containing a polymeric latex capable of providing a deformable latex film or seal on at least a portion of a subterranean formation, wherein the polymeric latex provides reduction of the rate of drilling fluid pressure in the borehole wall of the subterranean formation during drilling and enhanced flocculation properties; wherein the essential components of the water-based drilling fluids are the polymer latex and water. (Abstract; Page 2, [0022] and [0023]; Table 1) The polymer latex is preferably a carboxylated styrene/butadiene copolymer and the average particle size of the polymer latex can be less than 1 micron (1000 nanometers) and preferably has a diameter of about 0.2 microns (200 nm) or less. (Page 2, [0024]) The proportion of the polymer latex in the drilling mud can range from about 0.1 to about 10 vol. %. (Page 2, [0024])

Stowe further disclose the drilling fluid composition/latex further containing salt, such as potassium chloride; a precipitating agent; and surfactant, whereas the water can be fresh water. (Page 2, [0025] to [0028]) Other additives can be added to help balance the fluid properties. (Page 2, [0023])

However, Stowe does not expressly disclose the latex composition further containing PVP.

Heilweil and Carpenter were discussed previously in item 5 on page 3 of OA and all the grounds of rejection therein are incorporated herein.

As discussed in OA, Heilweil teaches a drilling fluid composition, and a method of drilling using thereof comprising, e.g., 1.5% polyvinylpyrrolidone (PVP); solvent; water (aqueous based fluid); clay (weighting agent); and salt. (Abstract; col. 3, lines 1-33; Examples 1 and 5) This drilling fluid is effective in reducing the swelling and dispersion of formation clay and shale. (Col. 5, lines 33-56; Shale inhibition test on page 5)

Heilweil further teaches that adding PVP as a polymeric thickener to a drilling fluid provides desirable stability properties to the fluid composition, particularly at high temperatures, including providing the drilling fluid with enhanced filtration loss properties; ability to dissolve salt; increased miscibility with water; preferred boiling point and flash point viscosity. (Abstract; col. 3, lines 1-21 and 37-60; col. 5, lines 53-56; Table I; Examples)

Although Heilweil does not disclose the particle size of the PVP used in the drilling fluid mud, as discussed in item 5 of OA, Carpenter teaches adding crosslinked PVP to a fluid composition for use in a subterranean formation application having a particle size of less than about 20 to 60 mesh. (Col. 7, lines 31-60; Table IV; Drawing) The drawing in Carpenter depicts rates of swelling inhibition with respect to particle size. (Col. 7, line 68 to col. 8, line 18) Carpenter further teaches that the rate of swelling activity (fluid-loss control rheology) of the crosslinked PVP particles in brine/water can

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be adjusted by particle size to attain a preferred rate of fluid loss control in the subterranean formation application. (Col. 8, lines 26-61)

Therefore, it would have been obvious to a person of ordinary skill in the art at the time that the claimed invention was made to add PVP to the aqueous drilling fluid composition disclosed in Stowe. It would have been obvious to one skilled in the art to do so to attain a resultant method of drilling (Stowe and Heilweil) that is more efficient due to the use of a drilling fluid composition having enhanced stability properties provided by PVP as taught by Heilweil.

Moreover, it would have been obvious to a person of ordinary skill in the art at the time that the invention was made to modify the particle size of the PVP component of the drilling fluid composition used in Stowe and Heilweil's method of drilling a well bore. It would have been obvious to one skilled in the art to incorporate a preferred particle size of PVP in the aqueous drilling fluid composition to be able to manipulate the degree of fluid-loss control and attain a resultant method of drilling that is more efficient as taught by Carpenter. That is, it would have been obvious to use a particle size for the PVP within the range disclosed in Stowe for the polymer latex because both additives are used primarily for the same purpose (stabilize the formation). Accordingly, it would have been obvious to choose to use PVP particles in the drilling fluid that are small enough (less than 1000 microns as disclosed in Stowe for the latex component) to attach/seal pores in the subterranean formation to stabilize and inhibit shale formation.

Thus the instant claims are unpatentable over Stowe, Heilweil and Carpenter.

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12. Claims 1, 3-8, 10-19, 21-25, 27, 28, 30, 32-36, 39-42, 44, 56, 59-62, 65-73, 82, 83, 85-90, 92-95, 97-100 and 103-111 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stowe in view of USPN 3,504,746 to Freifeld et al. (hereinafter, 'Freifeld') and further in view of Carpenter.

Stowe and Carpenter were discussed above in the instant action. Stowe does not disclose the drilling fluid latex composition further containing crosslinked PVP.

Freifeld teaches a method of sealing a walled system against fluid passage through its walls, said method comprising injecting an aqueous composition comprising 1 to 20% of crosslinked PVP and a catalytic amount of a redox catalyst system including commercial oxidants and reductants, wherein this composition is added to reduce or eliminate the influx of unwanted fluids; and wherein the crosslinked PVP forms permanent polymeric gels useful in sealing permeable earth formations. (Abstract; col. 2, lines 8-34 and 60-72; col. 3, lines 13-51; Table 1) The PVP composition penetrates the interstices of a porous medium, fills the communicating pores and subsequently crosslinks individual molecules of PVP polymers in the composition to form permanent gels that seals the walls and prevents further flow of fluids through said walls. (Col. 2, lines 23-34)

Freifeld further teaches other advantages for adding PVP to a drilling fluid composition, such as providing the ability to vary initial viscosities over wide ranges by modifying molecular weights and solution concentrations of PVP so that they have optimal initial viscosities for the particular system being treated; and adjusting the

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gelation or setting time of polymeric materials to control within sufficiently close limits to optimize penetration into permeable formation is effected. (Col. 2, lines 35-59)

Therefore, it would have been obvious to a person of ordinary skill in the art at the time that the claimed invention was made to add crosslinked PVP to the aqueous drilling fluid composition disclosed in Stowe. It would have been obvious to one skilled in the art to do so to attain a resultant method of drilling (Stowe and Freifeld) that is more efficient due to the use of a drilling fluid composition having enhanced formation stability provided by crosslinked PVP as taught by Freifeld.

Moreover, it would have been obvious to a person of ordinary skill in the art at the time that the invention was made to modify the particle size of the crosslinked PVP component of the drilling fluid composition used in Stowe and Freifeld's method of drilling a well bore. It would have been obvious to one skilled in the art to incorporate a preferred particle size of a crosslinked PVP in the aqueous drilling fluid composition to be able to manipulate the degree of fluid-loss control and attain a resultant method of drilling that is more efficient as taught by Carpenter. That is, it would have been obvious to use a particle size for the crosslinked PVP within the range disclosed in Stowe for the polymer latex because both additives are used primarily for the same purpose (stabilize the formation). Accordingly, it would have been obvious to choose to use crosslinked PVP particles in the drilling fluid composition that are small enough (less than 1000 microns as disclosed in Stowe for the latex component) to attach/seal pores in the subterranean formation to stabilize and inhibit shale formation.

Thus the instant claims are unpatentable over Stowe, Freifeld and Carpenter.

Response to Arguments

The 35 U.S.C. 102 Rejection over Nohr (item 1 of OA)

13. Applicant's arguments filed in Response traversing the captioned 35 U.S.C. 102 rejection as anticipated by Nohr have been considered but deemed moot in view of the withdrawal of this rejection due to Applicant's amendment to the claims limiting the average particle size of the PVP nanoparticle source to be less than 1000 nanometers.

The 35 U.S.C. 103 Rejections (items 5 and 6 of OA)

14. Applicant's arguments filed in Response traversing the captioned 35 U.S.C. 103 rejections have been considered but deemed moot in view of the withdrawal of these rejections due to Applicant's amendment to the claims limiting the average particle size of the PVP nanoparticle source to be less than 1000 nanometers.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Figueroa whose telephone number is (571) 272-8916. The examiner can normally be reached on Monday-Thursday 8:00-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John J. Figueroa/

Examiner, Art Unit 1796